

## Title (en)

Device and method for detection and reduction of intermodulation distortion in a CDMA receiver

## Title (de)

Vorrichtung und Verfahren zum Detektieren und Reduzieren von Intermodulationsverzerrung in einem CDMA-Empfänger

## Title (fr)

Dispositif et procédé pour détection et réduction de la distorsion d'intermodulation dans un récepteur à AMDC

## Publication

**EP 0862280 A3 19991229 (EN)**

## Application

**EP 98301465 A 19980227**

## Priority

US 80860197 A 19970228

## Abstract (en)

[origin: EP0862280A2] In the front end of a CDMA cellular or broadband PCS mobile phone receiver, a switched bypass connection is provided to bypass the low noise amplifier, sending the received signal through an amplifier bypass connection. The amplifier bypass connection may include an attenuator. The switched bypass is activated by a control signal generated by a digital signal processor. The digital signal processor analyzes the received signal to detect and determine the relative contribution of the IMD interference to the total received signal power and, when the IMD interference exceeds a predetermined level, sends a control signal to bypass the low noise amplifier. Identification of the presence of IMD interference is by spectral estimation to discern when the mobile phone is in the presence of large near-band signals from an AMPS or other narrow-band base station which causes in-band IMD. In a preferred embodiment, the spectral estimation is performed by collecting a series of data samples from the received signal and, using a digital signal processor (DSP), computing a Discrete Fourier Transform (DFT) to generate frequency domain data, passing the data through a filter bank, then using a decision algorithm to determine whether or not there is sufficient IMD present in the received signal to bypass the LNA. If the IMD level is high enough to warrant bypass of the LNA, the DSP will provide a signal to an automatic gain control (AGC) block for controlling a variable gain amplifier (VGA) to compensate for gain loss due to bypass of the LNA. <IMAGE>

## IPC 1-7

**H04B 1/707**; **H04B 1/10**

## IPC 8 full level

**H04B 1/10** (2006.01)

## CPC (source: EP KR US)

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## Citation (search report)

- [DA] WO 9619048 A2 19960620 - QUALCOMM INC [US]
- [A] RANHEIM A: "NARROWBAND INTERFERENCE REJECTION IN DIRECT-SEQUENCE SPREAD -SPECTRUM SYSTEM USING TIME-FREQUENCY DECOMPOSITION", IEE PROCEEDINGS: COMMUNICATIONS, vol. 142, no. 6, 1 December 1995 (1995-12-01), pages 393 - 400, XP000545018, ISSN: 1350-2425
- [A] GEVARGIZ J ET AL: "ADAPTIVE NARROW-BAND INTERFERENCE REJECTION IN A DS SPREAD -SPECTRUMINTERCEPT RECEIVER USING TRANSFORM DOMAIN SIGNAL PROCESSING TECHNIQUES", IEEE TRANSACTIONS ON COMMUNICATIONS, vol. 37, no. 12, 1 December 1989 (1989-12-01), pages 1359 - 1365, XP000100731, ISSN: 0090-6778

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